

REMARKS

There remains pending in this application Claims 1-30, with Claim 1 being independent. No claims have been added or cancelled. Claims 8-10, 12-15, 17-20, 23-25, and 27-30 are withdrawn.

In view of the above amendments and the following remarks, favorable reconsideration together with entry of those amendments and allowance of the above application is respectfully sought.

Initially, the claims have been amended where necessary to address the informalities cited with respect to Claims 1-6, 11, 16, 21, and 26. Withdrawal of the objection is therefore respectfully sought.

The invention as now set forth in independent Claim 1 is directed to an electromagnetic actuator comprising a core with a coil wound around the core, two stators magnetically coupled to each end of the core, a movable element which is displaceable relative to the stators and supporting means for supporting the movable element. As now set forth in independent Claim 1, the invention is characterized in that the stators and the movable element each have a projection and a depression in such a way that the projection and depression of the stators engage with the projection and depression of the movable element and is further characterized in that side surfaces of the projection and depression are parallel to the displacement direction of the movable element and partially overlapping even if there is no electromagnetic force.

The added features of Claim 4 are illustrated at least at page 7, line 3 of the specification and in Figures 1, 2, 4, 5, 6A and 6B.

Independent Claim 1 was rejected under 35 U.S.C. § 102(b), as being anticipated by Witschi, et al. (GB 2156590). The rejection is respectfully traversed.

As noted above, Applicants have further amended Claim 1 to more clearly recite that the side surfaces of the projection and depression are not only parallel to the displacement direction of the movable element but are partially overlapping even if there is no electrical force.

Applicants have recognized that if there is no partial overlapping, the electromagnetic force would not become a constant force until two comb-teeth shaped portions are overlapped by the electromagnetic force. Further, if the side surfaces of the comb-teeth portions are not parallel to the displacement direction, the electromagnetic force would also differ depending on the position and thus it would be hard to control the balanced position. Paralleling the side surfaces to the displacement direction and forming the initial overlapping can generate the constant force immediately after the electromagnetic force is generated, which makes it possible to carry out the accurate position because of the balanced position.

Applicants have reviewed the applied art of record and respectfully submit that the above salient features of the invention are neither taught nor suggested by Witschi, et al. More specifically, there is no disclosure or suggestion in that reference of the side surfaces of the projection and depression being parallel to the displacement direction of the movable element. Nor is there teaching of the partial overlap even if there is no electromagnetic force. As such, Applicants respectfully submit that independent Claim 1 is distinguishable over the applied art of record.


The remaining claims in the above-identified application incorporate the aforementioned features of Claim 1 and are therefore believed patentable over the art of record for reasons noted above with respect to Claim 1. In addition, each recite features of the invention still further distinguishing it from the applied art. Favorable and independent consideration thereof is respectfully sought.

Applicants respectfully submit that this Amendment After Final Rejection is being presented in an earnest effort to advance prosecution and place the application in condition for allowance. These amendments were not earlier presented as Applicants were of the firm belief that the claims previously on file were allowable over that art. Given the advance stage of prosecution in this application, it is deemed that the most expeditious means of advancing prosecution is entry of the amendment and early passage to issue of the above application.

Applicants respectfully submit that all outstanding matters in the above application have been addressed and that this application is in condition for allowance. Favorable reconsideration and early passage to issue of the above application is respectfully sought.

Applicants' undersigned attorney may be reached in our Washington, D.C. office by telephone at (202) 530-1010. All correspondence should continue to be directed to our below listed address.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'L. Stahl', written over a horizontal line.

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